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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,881	06/20/2001	Stuart Squires	45722.2	1537

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EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/681,881

Applicant(s)

SQUIRES ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 21-29 is/are pending in the application.
- 4a) Of the above claim(s) 21-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 3,6 and 7 is/are objected to.
- 8) ☒ Claim(s) 1-11 and 21-29 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/13/01.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-11) in the reply filed on May 12, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The applicants have cancelled non-elected method claims 12-20.

2. Newly submitted method claims 21-29 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the apparatus of Group I (claims 1-11) can be used in scrubbing/separation of gases that are not acidic, and/or for separation of condensate(s) from one or more gaseous component(s) (also see prior Office Action mailed April 14, 2004).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 21-29 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Drawings

3. The drawings filed on June 20, 2001 are subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948.

Correction is required in reply to the Office action. The correction will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: baffles "430" (1st line of paragraph [0054]). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "410" and "412" (Figure 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the

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sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to because it appears as though reference numbers "12" and "40" are not identified correctly in Figure 2A. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The abstract of the disclosure is objected to because the 1st word "Aethod" should be changed to "Method". Correction is required. See MPEP § 608.01(b).
8. The use of the (possible) trademark "GasTec" has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.
9. The disclosure is objected to because of the following informalities: throughout the specification, there are a number of terms/phrases that contain "scrambled" spellings. As a result, the specification has not been checked to the extent necessary to determine the presence of all possible minor errors (grammatical, typographical, and idiomatic). Cooperation of the applicants is requested in correcting any errors of which the applicants may become aware of in the specification, in the claims, and in any future amendment(s) that the applicants may file. Appropriate correction is required.

Claim Objections

10. Claim 3 is objected to because of the following informalities: in the 1st line, "an" should be changed to "a" before "horizontally". Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1-5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al. (US 2,983,573) in view of Ashbrook et al. (US 4,722,799).

Moore et al. disclose an apparatus for the removal (scrubbing) of hydrogen sulphide (acid gas) from a gas stream, in which the apparatus includes vertical closed reaction vessels (interconnected towers in Figures 2-4) that have respective gas inlets that contain hydrogen sulphide to be purified; free-flowing iron oxide pellets 10 (one form of solid iron) for use as a purifying material that gradually converts to iron sulphide

upon continued scrubbing of hydrogen sulphide; and gas outlets for exhausting the purified gas either into a subsequent tower or to a final gas outlet (column 1, line 15 through column 6, line 50; and Figures 1-4). One of ordinary skill in the art would have recognized that the material of the reaction vessel would include low carbon steels and/or other alloys that include iron, due to the abundance and hence low cost of such materials. Furthermore, the inner surfaces of steel/iron alloy vessels would inherently show some degree of corrosion (e.g. loss of vessel/reactor mass due to reaction with acid gas) after extended use. As a result, the source of solid iron would not necessarily have to be solely from iron oxide, as one of ordinary skill in the art would recognize.

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Further, the examiner notes that intended use limitations, such as "for containing a treatment fluid comprising aqueous and gaseous ammonia", do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating to the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim." See MPEP 2114 and 2115.

Moore et al. do not disclose the use of a single vessel divided by at least one reversible weir, a sprinkler bar with a recirculation pump, a baffle system, and a condenser.

However, Ashbrook et al. disclose a natural gas desulphurizing apparatus and method, in which the apparatus includes a vertical tower A (having an inlet 10 for sour/acid gas and an outlet conduit 20) that includes interior baffle systems (trays 12 made from steel in one embodiment) and a sprayer bar 14 with associated recirculation pump 16 and sprayer conduit 18, with the vertical tower A not needing to be corrosion resistant due to a protective coating of red iron oxide on the interior of tower A and other components; a horizontally elongate tower B that includes two substantially vertical reverse weirs 34 that divide tower B into multiple chambers that hold red and black iron oxide compounds in solution, elemental sulfur, and hydrogen sulphide to be scrubbed from the raw natural gas; a condenser (degassing means 26) connected upstream of the gas inlet; and a recycling means 40, such that these additional components on an acid gas desulphurizing apparatus are advantageous for obtaining a desulphurization system that operates continuously, safely, economically, and with low maintenance, while more effectively removing sulphuric gases from natural gas (abstract; column 1, lines 11-16; column 2, lines 1-11 and 19-60; column 3, lines 4-68; column 4, lines 1-54 and 64-68; column 5, lines 1-26 and 38-68; column 6, lines 1-5 and 47-68; column 7, lines 1-25; and Figures 1-3).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the apparatus for the removal (scrubbing) of

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hydrogen sulphide (acid gas) from a gas stream, as disclosed by Moore et al., by adding the additional features that include a single vessel divided by at least one reversible weir, a sprinkler bar with a recirculation pump, a baffle system, and a condenser, as taught by Ashbrook et al., in order to obtain a desulphurization system that operates continuously, safely, economically, and with low maintenance, while more effectively removing sulphuric gases from natural gas (Ashbrook et al.; column 1, lines 12-16; column 2, lines 1-11; and column 7, lines 1-10).

Allowable Subject Matter

14. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach or suggest an apparatus that includes all of the limitations of claims 1 and 4, and further including a baffle flexing means (dependent claim 6).

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571)

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272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 10/8/04*
Examiner
Art Unit 1725

KPK
kpk
October 8, 2004